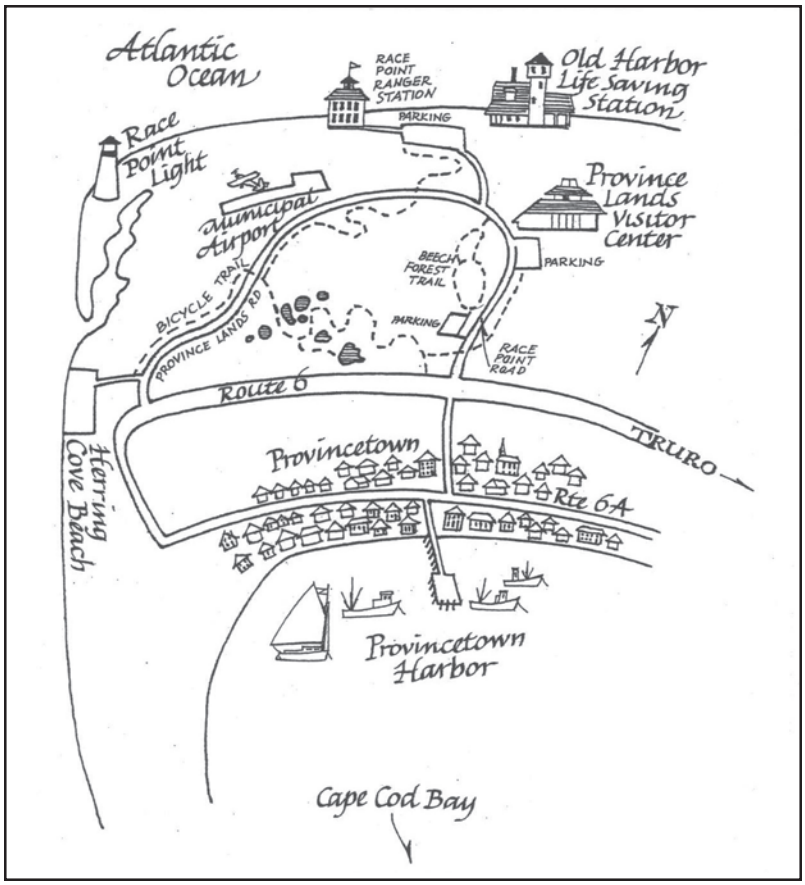
Guide's Guide

The Province Lands

Location Summary



Directions: From Head of the Meadow, travel Route 6 north toward Provincetown for six miles. Turn right onto Race Point Road at first traffic light. Look for brown and white signs marking the Beech Forest area and Province Lands Visitor Center. Race Point Road ends at Race Point Beach. To get to Herring Cove Beach, go to the end of Route 6. The beach is on the right. (To reach the center of Provincetown, which is outside the National Seashore, turn left at the set of lights on Route 6. The center of town is marked by the Pilgrim Monument, the prominent stone tower. Provincetown has a variety of restaurants, shops, whale watch boats, art galleries, and other services available. Contact the Province-town Chamber of Commerce for more information.)

Safety: Roads are heavily traveled in summer. Secondary roads are narrow and winding. Stay on paved surfaces to avoid getting stuck in sand. Lifeguard-protected beaches are available at the two public beaches in summer. Use caution on bicycle trails. Watch out for ticks and poison ivy. Use caution when walking; do not damage beach grass.

Other: Buses wishing to park at a beach during peak summer hours must park at Head of the Meadow Beach in North Truro. Restrooms are available in season at the two public beaches, and at Beech Forest and the Province Lands Visitor Center. No restrooms are available in winter. The visitor center is open May 1 through October.

Tips: Start telling the Province Lands story upon exiting the Head of the Meadow Area. This is one of the most scenic drives on the Cape. Spectacular sand dunes and views of Cape Cod Bay and the Atlantic ocean are highlights. Province Lands Bike Trail is a hilly, six-mile loop through dunes and forest, with spurs to both public beaches. Beech Forest Trail is a one-mile loop trail through forest and ponds, and includes a picnic area.

Time Frame: Ten-minute bus narration; twenty minutes for Beech Forest Trail; thirty to forty minutes at Province Lands Visitor Center; twenty minutes at Old Harbor Museum

Notes for Educators: Frequent Ranger-guided interpretive programs are offered in the area and at the Visitor Center. Visitor Center has orientation movies, exhibits, bookstore and observation deck.

Highlights:
Province Lands Visitor Center
Old Harbor Museum
Beech Forest Area
Race Point and Herring Cove Beaches
Parabolic Dunes
Town of Provincetown

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Prominent Natural Features

The Outer Beach. This portion of the Cape is accreting (building) as a result of "along shore" transport of sand from the glacial scarps to the south. The shoreline here drops off dramatically, allowing whales (and vessels) to come close inshore.

The Beech Forest Trail is a 1.5 mile loop that skirts the Beech Forest Pond and travels through a forest dominated by beech trees, which once were much more numerous on Outer Cape Cod. The area is gradually being inundated by migrating sand. It is a rewarding area for bird watching, especially for sighting warblers in the spring and fall.

Dunes. The spectacular dune landscape of the Province Lands has a complex history. It is primarily the result of deposition of sand that has washed from the eroded glacial scarp, subsequently built into dunes by wind action, and stabilized by beach grass. The Province Lands Visitor Center is a prime location to observe the dunes.

Beach grass revegetation efforts can be seen throughout the Province Lands. The dunes were forested once, but land use practices of European settlers denuded the dunes thus allowing widespread migration of sand. Efforts were initiated in the early 1800's to stabilize the dunes with vegetation. In Pilgrim times they had been forested and covered by a foot of soil. The National Park Service has continued to stabilize dunes with native beach grass planting, a program which was started shortly after the establishment of Cape Cod National Seashore in 1961.

The Province Lands
Touring Script

The Province Lands Area has long been a source of inspiration for writers, poets and artists. The stark colors of sand and sea, windswept dunes and the isolation of the Cape's tip still inspire the arts in Provincetown today. The numerous galleries and art schools in town and the primitive dune shacks and beach retreats foster creativity and keep the tradition alive and well.
The drive down Route 6 towards Provincetown reveals this splendid, barren landscape. Cottages line Beach Point to your left, with Cape Cod Bay as a backdrop. To your right, Pilgrim Lake and the large parabolic dunes on the opposite shore provide breathtaking contrast. The lake was once known as "East Harbor," and served as Provincetown's inner harbor. Ships weathered storms by anchoring here. Concern over sand being flushed out into Provincetown Harbor and the arrival of the railroad, led to the filling in of the entrance to East Harbor by 1873. With an average depth of three feet, today's Pilgrim Lake is a brackish lake ruled by white perch.

A Highway of Sand

The parabolic dunes are sculpted by powerful northwest winds that continue to drive the dunes into Pilgrim Lake. Seen from the air, their horseshoe shape, similar to a parabola in geometry, are a unique landform in the east. Just past the Provincetown line, some of the dunes are spilling onto the highway. Beach grass planting, a technique used since the early 1800s to slow the march of the dunes, has stemmed the bulk of the erosion here. In the past, the state struggled to keep this stretch of highway open by removing tons of sand every winter. In addition, some of the sand was mined for commercial purposes.

Why so much sand? The Province Lands was formed a mere 5,000 years ago from eroded materials from cliffs facing the Atlantic Ocean to the south. This loose sand and gravel was transported by along-shore currents and deposited inland by the wind. Although a mature forest developed over much of the Province Lands, grazing and clearcutting for firewood and for house and saltworks construction, depleted the vegetation. The blowing sand threatened Provincetown with burial for a time.

Grazing and cutting controls, extensive plantings of beach grass, pine and scotch broom, stabilized 1,200 acres by the 1930's. Today, the land is still recovering from the onslaught. In 1988, the National Park Service planted beach grass in critical areas, especially around Pilgrim Lake.

One of the few reminders of our hardwood forests is the Beech Forest area. A self-guided trail explores the ponds and groves of beech and oak trees that represent the "climax," or final stage in forest succession. Dense leaf patterns dominate the forest canopy, shading out the competition. The ponds in the area may provide a clue to the original formation of the Province Lands sand spit.

The Province Lands Visitor Center is an excellent source for more information on the history and present-day flora and fauna of the Province Lands. The center offers orienta-tion movies, exhibits, a bookstore and observation deck. Numerous Ranger-guided walks from the center explore the dunes and wet hollows where wild cranberries flourish.

Inquire about hours for the Old Harbor Museum, which can be spotted from the observation deck. The museum is a former U.S. Life-Saving Station located at Race Point Beach that displays shipwreck rescue equipment from the turn of the century. On Thursday evenings in the summer, an historical reenactment of the Breeches Buoy Rescue Drill is conducted at the station. (Note: Beach parking fee is collected in summer at Race Point Beach.)

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The Province Lands Dunes

A dune is a hill of sand piled up by the wind.

The sand of the Province Lands is very uniform in size, with the coarseness representing the energy of the winds in that area. These sand grains are composed mostly of quartz and are the end product of the breaking down of the rocks of the ancient Appalachian mountains and neighboring volcanoes. Sand dunes are found in many areas of the Cape and Islands, mostly in coastal zones, but occasionally inland.

The most extensive example of dunes on the Cape is found on the area known geologically as the Provincetown Spit. The height of the dunes varies from a few dozen feet to over one hundred feet in several locations such as near the Province Lands Visitor Center on Race Point Road.

Linear and Parabolic

Dunes are of two types - linear and parabolic. Linear dunes, known as foredunes, are located just behind the beach, and are formed by onshore winds carrying beach sand inland to where it is caught by beach grass. Some interior dunes are also linear and probably mark older locations of the beach when the sandy hook was still forming. Foredunes act as barrier dunes to protect the inland freshwater community from the ocean. Their importance is such that the Seashore has rules limiting traffic across them and asks people not to climb on them from the beach.

The larger interior dunes are parabolic, or horseshoe shaped, and are geologic structures that are (for this part of the world) unique to the Cape area. The U-shapes of these dunes develop as the centers become blowouts, with the prevailing winter winds from the west and northwest lifting the sand up the inside of the U and dropping it over the steep downwind side of the migrating sand wave. When looked at from an airplane, or on an aerial photo, the parabolas line up, and point downwind in a southeasterly direction.

Henry David Thoreau, in his book, *Cape Cod,* described the Cape as an upraised arm with *the sandy fist at Provincetown.* The fist has been added onto the glacially deposited sands and gravels of the arm during post-glacial time. Once the vast glaciers had melted enough, about 6,000 years ago (to raise sea level by almost 350 feet), an erosion process began on the ocean side of the Outer Cape that has reduced the forearm to a width that is less than half its former size.

The beach that develops at the base of the wave cut cliffs is actually a “river of sand” that migrates along the edge of the Cape in the predominate northward direction of wave attack. It is also the first step in the sorting action that reduces the numerous grain sizes of the glacially deposited sands and gravels to the very uniform size found on the beach. This material is further sorted when the wind picks some of it up and blows it off the beach and into the dune area.

The general appearance of the dunes has changed considerably over time. The Pilgrims, in 1620, reported in *Mourt’s Relation* (author unknown) that they found the Province Lands as follows: *... on this side where we lay (Provincetown harbor) is the bay, and further side the sea; the ground or earth, sand hills much like the downs in Holland, but much better; the crust of the earth* (soil) *a spit’s* (spade’s) *depth; ... the wood for the most part open and without underwood, fit either to go or ride in* (a climax forest). In short, the original forests were essentially like the present ones, but with more hardwood deciduous and less pine, more openness in the understory, larger trees, richer soil, and a greater diversity of species. About 97 percent of the Cape upland area was vegetated with only the beaches, some dunes, and salt marshes exposed.

In 1800, Timothy Dwight, a traveler, described crossing a sandy waste of 1,000 acres in Eastham, the high ground of Truro was bleak, barren, and desolate, and the land of Provincetown could scarcely be said to contribute at all to the sustenance of man. Thoreau, in 1850, comparing his scene with the Pilgrims, commented on the barrenness and desola-tion of the land, described it as a desert, and reported that he did not see enough black earth in Provincetown to fill a flower pot. He saw scarcely anything high enough to be called a tree. The greater part of the land was a pej fect desert of yellow sand, rippled like waves by the wind, in which only a little beachgrass grew here and there.

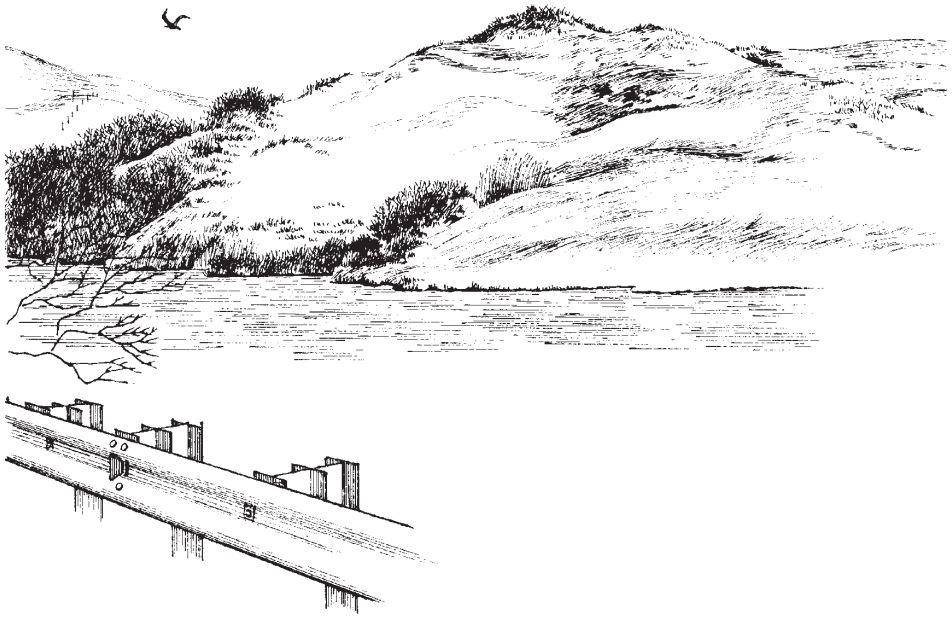
What had happened to the lushness of the original Cape?

In short, the Cape was stripped of its vegetation by the early settlers. By the early 1700s, hardly a tree could be found. Wood was needed for building and fuel, and the land needed to be cleared for farming. In the Provincetown area, this abuse led to the uncovering of the sand beneath the soil and created a hardship for the inhabitants. Sand dunes drifted like snow, at a rate of several hundred feet per year, according to early descriptions, and tended to bury buildings if not shoveled away.

The present state of vegetation is somewhere between the lushness of the Pilgrims and the barrenness of the 1700-1800s. This improvement is due to a change in attitude toward the land, moving away from the need to use the land for sustenance toward a desire to live with it, helped by a better understanding of what we need to do to protect and ensure our continued existence in this dynamic but fragile area.

Reclamation and replanting efforts started by the State in the late 1800s have been continued into the present by the federal government, now in stewardship of these sand plains. Beach grass is the anchor that holds and builds the dune structures. It was always planted first to stabilize the dune, to be followed by a diverse variety of hardy bushes and trees. The Seashore is still using this method in areas that have been abused by more modern use, such as heavy pedestrian traffic, off road vehicles, roads that are now closed, or where construction of buildings, roads, or trails has taken place.

Most of the dunes are now fairly well stabilized, with the most active moving only about ten feet per year. The future is the renewal of the forests of long ago over a time span that, although difficult to predict, will happen rapidly enough that we can observe changes within our lifetimes.



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The Pilgrims Arrive on Cape Cod

The Pilgrims were a small group of people who made a great impact on world history. Their story begins in England, sometime after King Henry VIII started the independent Church of England, also known as the Anglican or Episcopal Church. Most of the countries surrounding England did not agree with the King's decision. Many people in England did not agree either. Some wanted the Anglican Church to be more like the old Catholic church. Others wanted it to be even more simple and to rely more on Bible teachings than ceremony.

Puritans and Separatists

Near the end of the 1500s, a number of groups began to form in England with renewed interest in trying to establish different church practices. One of these groups was called "Puritans" because they wanted to make the existing Anglican church more "pure" and simple. Others were called "Separatist" because they wanted to become completely separate from the official Church of England. The Pilgrims were "Separatists," and they were often punished severely for this. (One of their beliefs was that they should be allowed to select their own church leaders and ministers.)

As different kings and queens ruled England throughout this period they had different ideas about religious practices. When King James came along, the Pilgrims thought they might finally be able to ask for permission to set up their own church. But the King denied the request, and the Pilgrims decided to leave England and move to Holland, where freedom of religion was accepted.

After several years of living in Holland, the Pilgrims became restless and unhappy. Their children wanted to speak Dutch instead of English and they missed other things about English life as well. Their leaders, William Bradford, Reverend John Robinson and several others worked out a plan to move the entire Pilgrim church group to America. That way they could still be English. But it was too difficult and too expensive to move everyone at once.

History in the Making

The trip was difficult to organize. In addition to the Pilgrims, it was necessary to include around fifty other English people to pay for the ship and supplies. (The original Pilgrim church members called themselves "Saints" and the others "Strangers.") Finally, after many setbacks, the Mayflower left for America on September 6, 1620. The trip across the ocean was rough and uncomfortable for the 101 passengers. What they were doing became an important piece of our history.

On November 11, 1620, the Pilgrims got their first look at the New World when they saw Cape Cod. The Pilgrim group had permission to settle in the northern part ofVirginia (which in those days reached to present day New York). When the Mayflower turned south, however, it ran into rough, shallow waters and was in danger of tipping over and sinking. It was quickly decided to head back to the deeper, safer waters off the tip of Cape Cod. Now a decision had to be made. Was this where they should stay?

The next thing that happened was very important indeed. Since Cape Cod was outside the area they were supposed to settle in, the group agreed to write a "compact" or "self-governing" agreement. This agreement became known as the Mayflower Compact. It called for the election of a governor from amongst the members of their group (something they were already comfortable with from their church practices). This was the first act of self-government in the New World.

After signing the Mayflower Compact, the Pilgrims decided to look over Cape Cod as a place to settle. They sent out three separate "discovery" expeditions to see what the area had to offer. During these "discoveries" they found their first fresh water, took some Indian corn, and almost had a battle (called the First Encounter) with some Native Americans. Cape Cod had many good features, but after a month of searching, it was decided to settle finally in Plymouth.

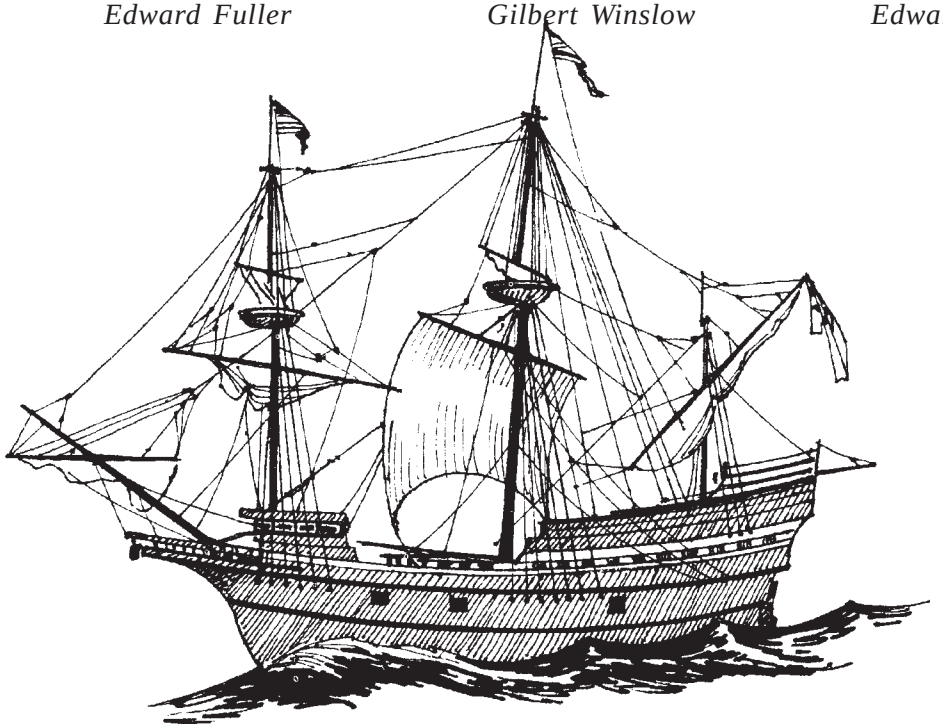
I*n the Name of God, Amen. We whose names are underwritten, the loyal subjects of our dread sovereign Lord, King James, by the grace of God, of Great Britain, France and Ireland, King, Defender of the faith, etc.*

Having undertaken, for the glory of God, and advancement of the Christian Faith and honor of our King and Country, a voyage to plant the first colony in the northern parts of Virginia, do by these presents solemnly and mutually in the presence of God, and one of another, covenant and combine ourselves together into a civil body politic, for our better ordering and preservation and furtherance of the ends aforesaid: and by virtue hereof to enact, constitute and frame such just and equal laws, ordinances, acts, consti-tutions and offices, from time to time, as shall be thought most meet and convenient for the general good of the colony: unto which we promise all due submission and obedience.

In witness where we have hereunder subscribed our names at Cape Cod the IIth of November, in the year of the reign of our sovereign Lord, King James of England, France and Ireland the eighteenth, and of Scotland the fifty-fourth, Ano. Dom. 1620.*

John Carver
William Bradford
Edward Winslow
William Brewster
Isaac Allerton
Myles Standish
John Alden
Samuel Fuller
Christopher Martin
William Mullins
William White
Richard Warren
John Howland
Stephen Hopkins
Edward Tilly
John Tilly
Francis Cooke
Thomas Rogers
Thomas Tinker
John Rigdale
Edward Fuller
John Turner
Francis Eaton
James Chilton
John Crackston
John Billington
Moses Fletcher
John Goodman
Degory Priest
Thomas Williams
Gilbert Winslow
Edmon Margeson
Peter Brown
Richard Britteridge
George Soule
Richard Clarke
Richard Gardiner
John Allerton
Thomas English
Edward Doty
Edward Leister

*Old Calendar



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The Pilgrims in Truro and Provincetown

"Land Ho!"

The cry went up on the morning of November 9, 1620. The land was Cape Cod, and for the 100 passengers who for 65 days had shared cramped quarters on the Mayflower, the cry came like an end to a nightmare. Beaten about by storms, confined below deck, sickly, coughing, and dirty, the passengers crowded onto the deck and squinted over the water.

Yes, it was land, all right. Low, brown, weather-beaten, wild - but it was land. Of course, it was not where they were supposed to be. Their contract with the Virginia Company entitled them to land in the Hudson River area which was still several days away, but when they found how dangerous the waters were along the eastern shore of the Cape, they decided that, contract or not, they would settle nearby.

Back to the end of the Cape (off Provincetown) they sailed; but, before dropping anchor, the leaders drew up a compact for all male members to sign, committing them to cooperate in the new government which would be established.
Now they were free to go ashore, a few at a time. First, just to feel land underfoot, then to wash clothes that hadn't been washed since they'd left Europe, to cut wood so they could have a fire and a hot meal for a change, and to run-which is what the children did.

Three Discoveries and One Encounter

The Mayflower stayed in the bay for a month while three separate parties searched the Cape for a place to settle. In single file, dressed in armor, carrying muskets, the men marched up the coast and through the woods and looked for a river, a good harbor, and a suitable area for planting crops.

What the explorers discovered first were five Native Americans, who ran away too fast to be questioned. Next, they found a spring of fresh water - their "first New England water" which tasted better, they said, than anything they'd drunk in their lives.

The following day, they found on the beach a large metal kettle (made in Europe) and a mound of dirt which seemed freshly-packed. With thirteen men standing around the mound, muskets ready, the other three men dug up what turned out to be a treasure-corn (placed there by the local natives for storage), several baskets, which held three to four bushels each. Since this was too much to carry back, they hung one basket on a pole for two men to carry between them. They filled the kettle with loose corn and stuffed what they could in their pockets and clothes. On their second trip, they came back for more (a total of ten bushels) and found also a bag of beans and a bottle of oil.

Corn Hill Beach in Truro is the site of the Pilgrim's find. (They later compensated the local natives for this act.) This Cape corn which the Pilgrims planted the following spring saved many Pilgrim lives.

Not everything turned out as well for the Pilgrims while they were on the Cape. The exploring party was lost once for a whole day; William Bradford fell into an Indian deer trap and had to be rescued. Fourteen-year-old Francis Billington, playing with a musket near an open barrel of gunpowder, pulled the trigger and set off sparks which might easily (but luckily did not) have blown up the Mayflower. There were days of grieving. Three passengers died here. But there was also a day of rejoicing when Peregrine White was born, the first white child to be born in New England.

The chief worry, however, was the worsening winter weather. No place had been found for a settlement. Although some argued for settling then and there on Corn Hill, it was finally agreed that one more discovery trip would be made. Robert Coppin, the Mayflower pilot who had been in the area the year before, said there was a good river and harbor across the bay.

On December 6, nineteen men set out in their shallop, an open boat, for the third discovery. Because of the extreme cold, they followed the coastline and camped that night on the beach near the present site of Eastham. The next morning, they were surprised by a wild cry and arrows flying around them. At the edge of the woods stood a band of Native Americans. They didn't stay long. When they saw the Pilgrim men running toward them in their coats of mail, muskets firing, they ran away. What they said, according to the explorers, sounded like "Woach, woach, ha hock, woach." The Pilgrims called this their first encounter and were thankful that no one was hurt.

After their encounter, the explorers continued on their way, and at the end of a stormy week, they returned to the Mayflower with the report that they had indeed found a good area for a settlement. On December 15th, the Mayflower left the Cape and sailed for the place that would soon be called Plymouth.

The Province Lands

Beech Forest Trail Guide

Birth of a Sandy Hook at the End of Cape Cod

When glaciers retreated northward from this land some 150 centuries ago, they left a landscape far different from the world of beaches and sand dunes we see today.

At first, the sea was as much as four hundred feet below its present level, and the land that would become Cape Cod was distinguishable only as the high area of a great mound of earthen debris. Even the fishing shoals of Georges Bank, about one hundred miles to the east, were exposed by this lowered sea level. Cape Cod was thereby protected from the erosive power of easterly storms for a while. Meltwaters from the great glaciers poured into the oceans as warmer climates returned, and the sea slowly submerged the banks. Storms then assaulted the eastern shore of this highest land.

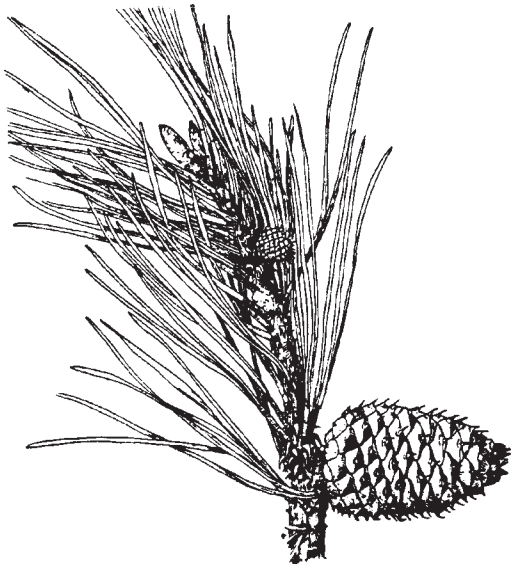
Water chewed into the soft debris, waves cut away the earth, and the debris was sorted by size in the surf and carried along the coast according to the direction of the waves. Bars of sand formed from these sediments,growing from several to tens of feet each year. A mile, perhaps two miles, of the eastern coastline of Cape Cod was removed by erosion and all the while, the rising sea flooded the coastline.

Although many Cape ponds were formed in depressions left by melting blocks of glacial ice, the dune ponds are different. In some instances, shallow ponds formed when sand was blown from low-lying areas. Other ponds lie in swales between small, former spits. All these areas became water-filled when the ground water was lifted by the saltwater beneath it.

The Province Lands “fist” is a relatively recent addition to Cape Cod. It began to form about 5,000 years ago. With the addition of sand, the great peninsula continues to slowly expand westward as glacial sediments are transported from the south. The sand and gravel of Truro’s outer cliffs will nourish these famous beaches for a while, but inevitably, the nourishing landforms will be eroded away by the relentless action of the sea. The growth of the Province Lands will end and its erosion will begin.

From Beach to Beech

No land is without life for long. And so it was with the Province Lands. Beach grass was one of the early colonizers of this land, then a forest of black oak, white oak and pitch pine gradually covered the stabilized dunes. By the time the Pilgrims landed, most of the land was forested.



With life comes soil. And soil moderates the extreme conditions to which life is exposed. So, what was once hot, arid, sterile sand became shaded, moist and nutrient-rich.Plants flourished in the excellent black earth. They included plants present along the trail today: mayflower, spotted wintergreen, starflower, red maple and, of course, beech.

The beech forest, then, is the product of centuries of development. It represents the last stage in the sequence of changing plants on Cape Cod. No other forms will replace it. Without such catastrophes as fire, it will perpetuate itself.

Life on the Pond

Water is the essence of life. Where it is abundant, life is in profusion. Where it is scarce, plants and animals adapt to economize the limited supply, or fail to survive. This range of conditions is conspicuous by the dune's ponds.

Uphill from water, only pines are growing well. Their roots extend deep and wide in the earth to obtain the little water that sand holds. Close to the pond, there is a noticeable change. Other plants are able to reach this life-sustaining liquid and survive. They include tupelo, red maple, inkberry, swamp azalea and sheep laurel. Even if no water is visible, these plants are indicators of water-saturated earth within a few feet of the ground surface. The pond itself is an exposed portion of this same water table.

Within the dune's ponds, life is in profusion. Nutrients are abundant and there are few stresses - other than space - that limit growth. Arrowhead, pickerel weed, golden club and floating heart grow with abandon. But, even here, life is controlled by changes in the water level. The water level rises and falls from one to two feet each year, according to seasonal rainfall and evaporation, and at times, shallow portions of the ponds are exposed. Only yellow water lilies grow near the pond edge. These plants can survive periods of exposure. Conversely, white water lilies grow in deeper water; their roots cannot tolerate the high concentration of oxygen in the air.

Too much of something, then, can be as much of a limiting factor to growth as too little.

Settlement and Change

Early Pilgrim writings describe Cape Cod as a forest of luxuriant woods, ... juniper; birch, hollv, vines, some ash, and walnut; wood for the most part open and without underwood ... But the practice was to hold this land for the common use of everyone. This was its downfall, for its use became a matter of first come, first served. Those who exploited it reaped its benefits. Before long, the wealth of the forest found its way into all aspects of colonial life.

The Province Lands' forests provided tar, turpentine and potash. Wood was used for homes, ship repairs and fuel. Land was cleared for farming and the raising of cattle and sheep that grazed without restriction. Inevitably, the forests dwindled as early settlers took more from the land than it could replace. With few controls upon its use, the cover of life was destroyed and the soil deteriorated. By 1800, most Outer Cape forests had vanished.

Without tree cover, the land was unprotected. The fierce Province Lands winds began to tear away the soil. Sand movement was so pronounced by 1714 that Provincetown and its harbor were in danger of being obliterated. Houses were built on pilings so the sand could pass beneath, unopposed.

In an effort to halt the abusive uses, colonial and federal laws were repeatedly enacted. Most were ignored. In desperation, beach grass was planted on 1,400 acres of sand in the early 1800s in an effort to save the town. Finally, in 1893, the Commonwealth of Massachusetts began a major program to plant woody trees and shrubs. The result of that project is the ring of green that now surrounds Provincetown.

Today, the sand dunes are still moving and portions of the beech forest are still being buried.The effort to stabilize the land goes on. With time - and care - more of the Province Lands may once again look like a rich island of green, and the diversi-ty of life the Pilgrims found may return.

The Province Lands

The Life Savers of Cape Cod

Between Storms and Shoals

The lifesaver's motto was, *You have to go, but you don't have to come back.* Likewise, their work earned them the title, "Guardians of the Ocean Graveyard" while they were stationed on Cape Cod between 1872 and 1915.

The elongated form of Cape Cod stretches its fist-clenched forearm 25 miles into the ocean. Thoreau described it as ... *boxing with northeast storms ... and heaving up her Atlantic adversary from the lap of the earth.*

To the mariner, the Cape represents both a hazard and a haven, as all shipping between Boston and New York must either pass into its sheltered bay, or ground on its treacher-ous shoals. Combined with the forces of countless "nor'easters" and its precarious location, the Cape has been the site of more than 3,000 shipwrecks in 300 years of recorded history.

It is the shallow sand bars several hundred yards off the beach that present the greatest danger. Here is where storm driven ships ground, break into pieces under the pressure of tons of raging water, and spill their fragile contents and occupants into the bone chilling surf.

The Early Humanitarians

From the onset, Native Americans and succeeding generations of Cape Codders offered aid to shipwreck victims. In 1785, the Massachusetts Humane Society initiated the world's first organized lifesaving service. Starting in Boston Harbor with shelters and food for shipwreck survivors, the Society eventually established outposts on Cape Cod in the early 1800s. Whereas their methods and equipment were well intended, the Humane Society members were unpaid volunteers who could not provide continuous or adequate services.

In 1845, Congress took the first step toward meeting the nationwide sea rescue problem by funding private organizations like the Humane Society. Finally, in 1872, the first federally constructed and staffed lifesaving stations emerged as part of the Depart-ment of Treasury. They became the U. S. Life Saving Service.

In the 1870s, nine stations were built on Cape Cod: Race Point, Highlands, Peaked Hill Bars, Pamet, Cahoon's Hollow, Nauset, Orleans, Chatham, and Monomoy Point.

Men, Equipment and Muscle

Life at these stations was a mixture of danger, glory, excitement and boredom. Usually manned by a crew of six surfmen and a keeper (or captain), the rank and responsibility of each man was carefully structured.

Endless hours of patrol were critical, especially at night and during storms when wrecks were most likely to occur. They were sometimes monotonous, but during foulweather the patrols were exhausting; surfmen often had to hold a wooden shingle in front of their faces to keep the sand out of their eyes as they patrolled. Patrols would meet at small halfway houses between stations and exchange metal tags, or punch time clocks to verify completion. In the summer months, the surfmen were released, leaving only the keeper on duty.

At the station, a strict schedule was followed, requiring different drills on specific days.When a wreck was sighted, the surfman on patrol would ignite a coston's flare to signal the stranded ship and alert the station crew. "Ship Ashore!" was the verbal alarm.

After laboriously carrying rescue equipment by hand or horsecart to the beach, the keeper would determine where and when to launch the specially designed surfboats. Given the names “Race Point” and “Monomoy” types, these buoyant, sturdy, and relatively lightweight boats carried five oarsmen and the keeper at the helm. Only five victims could be safely rescued at a time, thus often many perilous return trips had to be made. Whereas hundreds of victims were rescued in this manner, only on two tragic occasions did Cape Cod lifesaving crews lose their own lives.

The Breeches Buoy

When weather and surf were too violent to launch the surf boat, the alternate method of rescue was the breeches buoy. The buoy consisted of a pair of canvas breeches fastened inside a life ring and suspended from a life line and pulley system between the stranded ship and shore. The Lyle gun (a small cannon) was used to shoot a lightweight line to the ship, which in turn was pulled on board by the ship’s crew. Along with it came an instruction paddle, block and pulley, the heavier hawser line, and continuous whip lines. Simultaneously, the surfmen erected a twelve-foot wooden crotch to suspend the hawser line and breeches buoy above the surf and buried an anchor in the sand. In practice, the whole operation had to be done within five minutes. Only after all this was accomplished could one victim at a time be rescued as the breeches buoy was tediously pulled back and forth from shore. Time and effort made this less popular than using the surf boat.

End of an Era

Eventually, there was change. During the early 20th century, sturdier self-propelled steel ships began replacing sail-powered wooden vessels. Likewise, telegraphy, radio, and improved weather forecasting dramatically reduced the number of shipwrecks on Cape Cod. However, it was the opening of the Cape Cod Canal in 1914 that reduced navigation dangers and ended the colorful era of the lifesavers on Cape Cod.

The Province Lands

Saltmaking on Outer Cape Cod

Saltmaking flourished on the Outer Cape in the early nineteenth century.

Salt was made on the Cape before the invention of "saltworks." The earliest method used was boiling down salt water in huge vats, a process that required huge amounts of firewood. This contributed to the destruction of forests.

A firewood-saving innovation in saltmaking aided the expansion of this industry. In 1776, John Sears of Dennis changed the saltmaking system by using solar evaporation of salt water in shallow vats. A form of solar evaporation had been used in Europe by the 18th century, but this was done in clay-lined beds unavailable on the Cape. Therefore, Sears used wooden structures in his process.

In 1793, Reuben Sears of Harwich, improved Sears' work when he built covers that could be opened on sunny days and closed in inclement weather. The process was again improved when Nathaniel Freeman of Harwich used small windmills to run pumps that brought water into the vats; "miniature windmills whirled above the low roofs of the saltwork sheds." Hattil Kelly refined the roof system when he developed a system to cover or uncover two vats at a time. Blocks, pumps, and rollers for saltworks were made by Joseph Young of Chatham after 1828, and the manufacture of saltmaking apparatus was mechanized in 1847. A set of drawings of Enoch Harding's saltworks in Chatham in 1830 was made for the Historic American Buildings Survey (HABS). Each vat is depicted as being nearly fifteen feet square.

Different salts were produced by this process. One of them, Glauber salt, was used in tanning to prevent hides from drying stiff, as well as for medicinal purposes. The final product, sodium chloride, was used principally for the preservation of fish. It was stored in bushel baskets if consumed locally, or put in barrels if shipped.

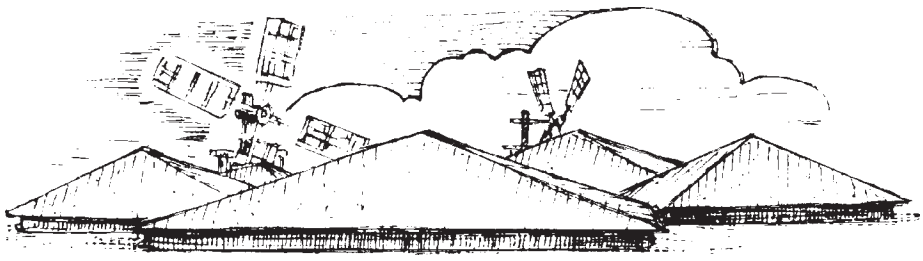
The favored locations for saltworks were shoreline coves, particularly on the bay side or near Nauset Harbor and Town Cove. In these places, seawater could be pumped by means of windmills into the evaporation vats.

Saltworks grew rapidly, and in 1802 there were 136 operations on the Cape which produced more than 40,000 bushels of salt and 182,000 bushels of Glauber or epsom salts each year. The War of 1812 caused a "fillip to prices," as in the Revolution, and more saltworks were established. *Every man living near the salt water had his patch of saltworks, if it took his last patch of cornfield or potato yard.* Considering that these literally were backyard operations, some of the reported data on salt production may not include small-scale saltworks that provided salt for consumption by local fishermen who wanted to preserve their catch. Consequently, official statistics are probably on the low side.

Besides employing mechanics who constructed the saltworks, making salt gave employment to elderly men and boys.

The Province Lands

Windmills and Salt Vats



Windmills for Energy

Up and down the shores of Cape Cod, windmills were rigged with sails in the old days. The long arms of the mills turned and the sails billowed in the wind as if, given the notion, the Cape itself might take off to sea. It is not surprising that Cape Codders, who learned to be as much at home at sea as on land, should find a way to put sails to work when they were ashore.

Of course, as soon as the Outer Cape towns were settled in 1639 and the early 1640s, mills were needed. Cape farmers soon tired of the long three-and-a-half-day wagon trip to Plymouth to have their corn ground; so, they began building water mills along the streams of Sandwich, Barnstable, Yarmouth, and down the Cape. But, in 1683, Thomas Paine, a millwright, decided that, with streams being in short supply, he'd call on the wind for power. The first windmill he built was in Eastham, but hardly had he finished when the people of Eastham decided they wanted another. So up went a second windmill. Then nothing else would do. Barnstable must have one of Mr. Paine's windmills. Then Yarmouth. Then Truro.

Obviously, the way windmills were catching on, Thomas Paine couldn't supply the whole Cape, and he didn't need to. Thomas Baxter and his two sons of West Yarmouth went into the business. Their windmills were said to be the quietest on the Cape. During a strong wind, a windmill is a creaking, groaning, clickety-clacking affair. In any case, Cape people like to joke about the Baxters:

The Baxter boys they built a mill;
Sometimes it went; sometimes stood still;
And when it went, it made no noise
Because it was built by the Baxter boys.

Not even a Baxter mill was easy to operate. In order to shorten or unfurl the sails (depending on the strength of the wind), a miller had to climb out on each of the four arms of the windmill, just as if he were climbing the mast of a ship. And before he went up, he had to remember to fasten the heavy iron chain that held the arms still. Seventy-year-old Henry Hall of Dennis forgot once and was halfway out on an arm when the wind caught the wheel and began turning it. If Mr. Hall had not been a sailor at one time and used to climbing in a wind, he might not have made it back to the shaft.

The only workable sail-rigged windmill on the Cape today is a gristmill built in Plymouth in 1783 and brought on a raft to Truro. A few years later (probably 1797), it was moved to its present site on Route 6 in Eastham, the home of Thomas Paine's first windmill.

Getting Salt Out of the Sea

As proud as every town was of its windmills, it was not until they were given a new job that they reached the height of their popularity. Windmills, it was discovered, could help get salt out of the sea. Of course, Cape Codders had always made salt which they needed not only to flavor their food but to preserve it. In the early days, they had simply boiled seawater in huge iron kettles. When the water had boiled away, they scooped up the salt that remained. But this slow work used up a great deal of firewood and produced only a little salt.

Then Captain John Sears of Dennis had an idea: instead of boiling the water away from the salt, why not let the sun evaporate it? He built long, shallow wooden vats which he filled with seawater and exposed to the sun. It did not work any better. The first year Captain Sears produced eight bushels of salt, but he almost wore himself and his family out with carrying buckets of water and emptying them into those vats. He tried hand pumps, but even this was hard. Ten years later (about 1786), Major Nathaniel Freeman of Harwich thought of windmills to pump the seawater up hill into man-made salt ponds or wooden reservoirs from which the water could be released into the vats as needed.

Cape Codders were in the salt business. More windmills went up. The shores were lined with rows of windmills, always far enough away from the road so they wouldn't frighten passing horses. Vats were improved to obtain the finest possible quality of salt. By the 1830s there were 442 saltworks on Cape Cod producing more than a million bushels of salt each year. Saltworks dotted the shoreline of Cape Cod Bay, especially in Truro and Provincetown. This prosperity, however, lasted only about ten years until salt mines opened in New York State, and the price of salt went down. Gradually, Cape Codders turned their vats and windmills to other uses.